sulphate of quinine in frequent doses. There are no more paroxysms. Discharged the 25th. In twenty-four hours this patient lost more than a million of globules per millimetre cube.

In cases of prolonged fever, and in cachectic cases, the loss was much greater. Professor Kelsch states, *en résumé*, that when the variations in the number of globules in a vigorous man are followed from the first paroxysm to the stage of profound anæmia, it is found—(1) That the anæmia comes on very rapidly. In less than a month the globules fall from five millions to a million and a half or less per millimetre cube; (2) That there are three stages in the numerical variations of the red globules, which correspond with tolerable accuracy to the changes in the fever, as observed clinically. A first and short one, in which the globular deficit, exceedingly rapid, is reckoned by several hundred thousands daily. It corresponds to the initial stage of the fever, when there are acute febrile symptoms of more or less gravity, which are continued or remittent.

A second, which lasts longer than the first, during which the deficit for each paroxysm becomes less. The fever is still severe, but the intermitting type (quotidian or tertian) has taken the place of the remittent. During these two first stages the globules have continued to decrease in number.

Finally, a third, in which the number of globules ceases to fall. It oscillates at first for some time around a minimum. The blood still loses under the influence of the paroxysm, but the losses are less marked than in the two first periods, and are compensated by the salutary influence of periods free from fever, during which the globules are regenerated. This regeneration seldom takes place during the two preceding stages. Clinically, this last phase is marked by isolated attacks, between which there are longer or shorter periods, during which there is no fever.

Professor Kelsch further gives a number of measurements which show that the red globules increase in size, and that in malignant cases white corpuscles are observed, containing masses of pigment.—*Edinburgh Med. Journ.*, Dec. 1875.

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14. *The Treatment of Paludal Fevers by Arsenic.*—This paper, by M. SISTACH (*Archives Générales de Médecine*, September, 1875), comprises the fruits of a large experience gathered at the military hospital of Bona, in Algeria, one of the most malarious stations in that malarious colony. The author arranges his cases under four heads: intermittent faver, remittent fever, pernicious paludal fever, and paludal cachexia. The first group includes 229 cases, of which 136 were quotidian, seventy-four tertian, eleven quartan, five irregular, and three masked. Algerian intermittents are most frequent and severe during the summer months. The number of paroxysms is always greater in the first attack than in subsequent ones; and this difference is observed, whatever be the mode of treatment employed. Indeed, M. Laveran noticed it in his account of eighty-eight cases treated on the expectant method of Blidah. In comparing the results of treatment with those of simple expectation, it is indispensable that the cases should all have been subject to the same telluric and climatic conditions. In a comparatively healthy locality, such as Blidah, recovery without specific treatment is not uncommon; whereas at Bona, where the patient continues to be exposed to miasmatic influences of a most intense kind, attempts at expectation may prove dangerous, if not fatal. Each of the 136 cases of quotidian ague furnished an average number of 1.7 paroxysms after the treatment by arsenious acid had been begun; this average only amounting to 0.75 in the seventy-four cases of tertian fever. Frémy, Fuster, and Girbal had previously noticed that the febrifuge action of arsenic manifested itself more promptly in the latter than in the former variety of the disease.

The following are the rules laid down by the author for the administration of the remedy. They are essentially the same as those originally promulgated by Boudin; and the failures which have been recorded since his time by various observers must be attributed to their neglect of those details on which the certainty and the safety of arsenical medication depend. 1. The arsenious acid must be given in solution. The previous administration of an emetic is only necessary when the stomach is overloaded. 2. The remedy must be freely diluted, and given in very small doses, frequently repeated. 3. The quantity taken in twenty-four hours must be proportionate to the severity of the fever, to the length of time it has lasted, and to the nature of the locality as regards malaria. 4. We must begin by giving from three to five centigrammes daily (.45 to .75 grain), to be continued as long as the paroxysms recur. 5. After the paroxysms have ceased to recur, the dose ought to be diminished by one centigramme every day; but the patient must continue to take about one centigramme daily for some ten days after he is apparently free from symptoms. When these directions are carefully attended to, the use of arsenious acid is wholly free from risk. A few cases of conjunctival irritation, sometimes associated with œdema of the eyelids and cheeks, occasional colicky pains with slight diarrhœa, and in very rare instances nausea and vomiting; such are the only accidents which M. Sistach has ever observed. He concludes that for the treatment of intermittent fever arsenious acid is as effectual as quinine, and more effectual than cinchonine or quinium; though as regards quickness of operation, quinine must continue to hold the foremost place. The extreme cheapness of the mineral remedy is, of course, its chief recommendation; by substituting it, even partially, for quinine, many hundred thousand francs may be yearly saved on the war budget alone.

Under the second head, that of remittent fever, the author's results are by no means favourable. The remittent form of the disease is notoriously more obstinate than the intermittent variety, and demands much larger doses of whatever febrifuge remedy we may choose to employ. Now arsenious acid, if given in the necessary quantities, invariably aggravates the gastro-intestinal symptoms to a dangerous extent. Moreover, the comparative slowness of its operation renders it unsuitable for the treatment of a disease which does not bear delay. It is equally unsuitable, and for the same reasons, as a substitute for quinine in the treatment of the pernicious variety of paludal fever; of three cases treated by M. Sistach with arsenious acid, two died. As regards the divers forms of paludal cachexia, the author asserts that neither quinine, nor arsenic, nor any other drug, is of any avail; the patient's only hope of recovery lying in removal to a more healthy region, together with the diligent employment of hydro-therapeutic measures.—*London Med. Record,* Nov. 15, 1875.

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15. *Smallpox of Sheep.*—It would seem from the researches of Dr. KLEIN that we are now in possession of substantial evidence that variola, if not caused, is at least accompanied, in the sheep, by the growth and development of a peculiar fungus which makes its appearance in the tissue of the corium and its lymphatics, and is gradually carried or penetrates into the vesicles formed in the rete Malpighii. This fungus, Dr. Klein proposes, since he has been unable to identify it with any described species, to call the "oidium variolæ;" and adds that it is a very important question. and one deserving alike the attention of physicians and anatomists, whether any form of vegetation corresponding to it is to be met with in the cowpox or in human smallpox.—*Lancet,* Nov. 27, 1875, from *Philosophical Transactions.*

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16. *Pathology of Sunstroke.*—Dr. RUDOLPH ARNDT gives the history of three cases of sunstroke occurring in the persons of three healthy young soldiers after a long and fatiguing march, and follows the account by a review of the pathological changes met with after death.

There are two features standing in strong contrast—the blanching of all the organs, and therewith, the over-distended condition of all their vessels above a certain size with dark-coloured, uncoagulated blood. The skin and muscular tissue were bloodless, but their large vessels full to bursting, exuding large drops of blood when wounded. The brain was in the same anæmic state together with its membranes, whilst the large veins and the sinuses were distended with dark, unclotted blood. The same condition obtained in the heart, pericardium, liver, and kidneys, as well as in the mucous membrane of the intestines and bladder. In consequence of their extreme distension, the blood-vessels were much increased in size, and in some places, as beneath the endo-